Claim Amendments

Claim 1 (original): A temporary device for capturing embolic material from a bodily fluid within a vessel of a patient, the device comprising:

an elongate guidewire having a distal region;

a capture element disposed about the guidewire distal region, the capture element having distal and proximal ends and a central region, wherein relative longitudinal movement between the distal and proximal ends accompanies a transformation of the capture element between a generally tubular closed configuration and a deployed configuration wherein the central region is expanded into apposition with the vessel; and

at least one latch fixed to the guidewire distal region in a location such that the latch is operable to releasably engage with the proximal end of the capture element to temporarily retain the capture element in the deployed configuration.

Claim 2 (original): The device of claim 1 wherein the distal end of the capture element is longitudinally fixed to the guidewire.

Claim 3 (original): The device of claim 1 wherein the capture element is removably slidable along the guidewire, the capture element having been selectively placed about the guidewire and pushed onto the guidewire distal region, the device further comprising a stop element disposed on the guidewire distal region, the stop element being capable of blocking advancement distal thereto by the distal end of the capture element.

Claim 4 (original): The device of claim 1 wherein the at least one latch is positioned between the distal and proximal ends of the capture element when the capture element is in the closed configuration.

Claim 5 (original): The device of claim 1 further comprising a first anti-inversion stop fixed to the guidewire at a location distal of the at least one latch, the first anti-inversion stop being capable of preventing advancement distal thereto by the proximal end of the capture element.

Claim 6 (original): The device of claim 1 further comprising an elongate, hollow, deployment rod slidably and removably disposed about the guidewire, the deployment rod being operable to push the proximal end of the capture element distally along the guidewire and over the at least one latch, thereby effectuating the transformation of the capture element from the closed configuration to the deployed configuration.

Claim 7 (withdrawn): The device of claim 6 further comprising a second anti-inversion stop fixed within the deployment rod at a location adjacent a rod distal end, the second anti-inversion stop being sized not to fit over the at least one latch, the second anti-inversion stop thereby limiting the distal extent to which the proximal end of the capture element can be pushed by the deployment rod.

Claim 8 (original): The device of claim 6 wherein the deployment rod comprises an elongate, wire-like, proximal shaft and a relatively short tubular distal section.

Claim 9 (original): The device of claim 6 wherein the deployment rod comprises an interventional catheter.

Claim 10 (original): The device of claim 1 wherein the capture element comprises a filter operable, when in the deployed configuration, to allow the bodily fluid to pass there through while simultaneously capturing the embolic material therefrom.

Claim 11 (original): The device of claim 10 wherein the capture element comprises a tubular braid of filaments.

Claim 12 (original): The device of claim 11 wherein the filaments comprise shape-memory metal wire.

Claim 13 (original): The device of claim 12 wherein the shape-memory metal is nitinol.

Claim 14 (withdrawn): The device of claim 11 herein at least one of the braided filaments comprises a radiopaque material.

Claim 15 (withdrawn): The device of claim 11 wherein at least one of the braided filaments comprises a wire having an inner core of a first material surrounded by an outer layer of a second material.

Claim 16 (withdrawn): The device of claim 15 wherein one of the first and second materials is radiopaque.

Claim 17 (withdrawn): The device of claim 16 wherein the wire is formed by a drawn-filled-tube process.

Claim 18 (withdrawn): The device of claim 17 wherein the first material is an alloy comprising 90% platinum and 10% nickel, and the second material is nitinol.

Claim 19 (original): The device of claim 1 wherein the capture element comprises a support structure capable of the transformation between the closed and deployed configurations, the support structure being covered with an elastic membrane.

Claim 20 (original): The device of claim 19 wherein the support structure comprises a tubular braid of filaments.

Claim 21 (original): The device of claim 19 wherein the support structure comprises a first tube having been slotted or slit to form generally longitudinal struts.

Claim 22 (original): The device of claim 21 wherein the first tube comprises nitinol.

Claim 23 (withdrawn): The device of claim 19 wherein the elastic membrane is non-porous, such that the capture element comprises an occluder operable, when in the deployed configuration, to obstruct passage of the bodily fluid through the vessel of the patient.

Claim 24 (original): The device of claim 19 wherein the elastic membrane is porous, such that the capture element comprises a filter operable, when in the deployed configuration, to allow the bodily fluid to pass therethrough while simultaneously capturing the embolic material therefrom.

Claim 25 (currently amended): The device of claim 19 wherein the elastic membrane comprises [a biocompatible material selected from groups such as] natural [rubbers] rubber, synthetic [rubbers] rubber, thermoplastic [elastomers] elastomer or thermoset [polymers] polymer.

Claim 26 (original): The device of claim 1 wherein the at least one latch has distal and proximal ends, and a normal shape and size suitable for engagement with the proximal end of the capture element, the at least one latch being reversibly operable to allow the proximal end of the capture element to slide there over.

Claim 27 (original): The device of claim 26 wherein the proximal end of the at least one latch is fixed to the guidewire.

Claim 28 (withdrawn): The device of claim 26 wherein the at least one latch comprises a second tube having been slotted or slit to form two or more generally longitudinal pawl elements.

Claim 29 (withdrawn): The device of claim 28 wherein the pawl elements are joined at both the distal and proximal ends of the at least one latch.

Claim 30 (withdrawn): The device of claim 28 wherein the second tube comprises nitinol.

Claim 31 (original): The device of claim 26 wherein the at least one latch comprises a tubular braid of filaments.

Claim 32 (original): The device of claim 26 wherein the normal shape of the at least one latch comprises one or more latch engagement surfaces for engagement with the proximal end of the capture element.

Claim 33 (original): The device of claim 32 wherein the one or more latch engagement surfaces are circumferentially arranged in a middle region of the at least one latch.

Claim 34 (original): The device of claim 26 further comprising an elongate, hollow, closing rod slidably and removably disposed about the guidewire, the closing rod being operable to advance over at least a portion of the at least one latch to selectively compress the normal shape and size thereof, thereby disengaging the latch from the proximal end of the capture element.

Claim 35 (original): The device of claim 34 wherein the closing rod comprises an elongate, wire-like, proximal shaft and a relatively short tubular distal section.

Claim 36 (original): The device of claim 34 wherein the closing rod comprises an interventional catheter.

Claim 37 (withdrawn): A method of capturing embolic material generated during an interventional catheterization of a treatment site within a patient's vessel, the method including the steps of:

providing a device for capturing embolic material, the device comprising:

a guidewire having a distal end;

a self-closing filter disposed adjacent the guidewire distal end, the filter having a distal end and a proximal end slidably disposed along the guidewire, the filter being deployable into apposition with the patient's vessel;

a latch fixed to the guidewire between the filter distal and proximal ends, the latch being operable to releasably engage the proximal end of the filter to temporarily retain the filter in apposition with the patient's vessel; and

an elongate, hollow deployment rod, the rod being selectively and slidingly disposable about the guidewire;

introducing the device into and through the patient's vessel until the filter is located downstream of the treatment site;

advancing the deployment rod over the guidewire into abutment with the proximal end of the filter, and further advancing the deployment rod to deploy the filter into apposition with the patient's vessel and to engage the proximal end of the filter with the latch;

removing the deployment rod from the guidewire;

advancing an interventional catheter over the guidewire to a position within the treatment site;

performing the intervention with the catheter;

advancing the catheter over the guidewire to operably disengage the latch from the proximal end of the filter and at least partially withdrawing the catheter to permit the filter to close itself and capture embolic material there within; and

withdrawing the device and the catheter from the patient.

Claim 38 (withdrawn): A method of removing embolic material generated during an interventional catheterization of a treatment site within a patient' vessel, the method including the steps of:

providing a system for capturing embolic material, the system comprising:

a guidewire having a distal end and a stop element disposed adjacent the distal end, the stop element being capable of blocking advancement distal thereto by a device slidably disposed about the guidewire;

a self-closing occluder having distal and proximal ends, the occluder being capable of being selectively mounted about the guidewire and being slidably advanced along the guidewire into a position where the occluder distal end abuts the stop element, the occluder being further capable of being deployed into apposition with the patient's vessel;

a latch fixed to the guidewire between the occluder distal and proximal ends, the latch being operable to releasably engage the proximal end of the occluder to temporarily retain the filter in apposition with the treatment site;

an elongate, hollow closing rod, the rod being selectively and slidingly disposable about the guidewire; and

an aspiration catheter capable of removing embolic material from the treatment site within a patient;

introducing the guidewire into and through the patient's vessel until the guidewire distal end is located downstream of the treatment site;

mounting the occluder about the guidewire;

advancing an interventional catheter over the guidewire into abutment with the proximal end of the occluder, further advancing the interventional catheter to slidably advance the occluder until the occluder distal end abuts the stop element, and further advancing the interventional catheter to deploy the occluder into apposition with the patient's vessel and to engage the proximal end of the occluder with the latch;

positioning the interventional catheter along the guidewire within the treatment site;

performing an intervention with the interventional catheter;

exchanging the interventional catheter for the aspiration catheter;

operating the aspiration catheter to remove embolic material from adjacent the occluder proximal end;

removing the aspiration catheter from the patient;

advancing the closing rod over the guidewire to operably disengage the latch from the proximal end of the occluder, and at least partially withdrawing the closing rod to permit the occluder to close itself; and

withdrawing the closing rod, the guidewire and the occluder from the patient.